

5 CLAIMS:

1. A device for use in introducing or withdrawing an agent through a body surface, comprising:
a member having a plurality of microprotrusions extending from a body surface proximal portion of the member; and
10 a structural support which contacts and extends across at least a portion of the member, the support having greater rigidity than the member.
2. The device of claim 1, wherein the support has greater rigidity to a force applied perpendicular to the body surface than does the member.
3. The device of claim 1, wherein the support is sufficiently rigid to deflect less than 300 μm under manually applied finger or hand pressing of the device against skin.
- 20 4. The device of claim 3, wherein the support deflects less than 50 μm under said pressing.
5. The device of claim 1, wherein the support is sufficiently incompressible to compress less than 250 μm under manually applied finger or hand pressing of the device against skin.
- 25 6. The device of claim 5, wherein the support compresses less than 50 μm under said pressing.
- 30 7. The device of claim 1, wherein the member comprises a sheet which in use is oriented approximately parallel to the body surface, the sheet having a plurality of openings therein and the plurality of microprotrusions extending from a body proximal surface of the sheet, said microprotrusions being adapted to pierce the body surface.
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5 8. The device of claim 1, wherein the structural support defines a void for an agent-containing or agent-receiving reservoir.

9. The device of claim 7, wherein the reservoir is in agent-transmitting communication with the openings in the sheet.

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10. The device of claim 1, wherein the support comprises a peripheral member and a plurality of cross-members.

11. The device of claim 1, wherein the support has a honeycomb structure.

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12. The device of claim 1, wherein the support comprises a corrugated sheet.

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13. The device of claim 1, wherein the support has a curved surface which contacts the member.

14. The device of claim 13, wherein the curved surface has a shape selected from the group consisting of convex and cylindrical.

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15. The device of claim 7, wherein the support comprises a plurality of wavy strips arranged in perpendicular alignment to the sheet.

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16. The device of claim 1, wherein the member has a thickness of less than 100 μm .

17. The device of claim 16, wherein the member is comprised of metal.

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18. The device of claim 1, wherein the member comprises a sheet having the plurality of microprotrusions extending from a body surface proximal edge of the sheet for piercing the body surface, the sheet when in use being oriented

5 in an approximately perpendicular relation to the body surface with the body surface proximal edge having the microprotrusions engaging the body surface.

19. The device of claim 18, wherein the sheet has a configuration which defines a void for an agent-containing or agent-receiving reservoir.

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20. The device of claim 18, wherein the support contacts a second edge of the sheet, which second edge is opposite to the body surface proximal edge having microprotrusions.

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21. A method of maintaining open agent-transmitting pathways through a body surface having the device of claim 1 positioned adjacent thereto, comprising periodically reapplying a body surface directed force to said device.

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22. The method of claim 21, wherein said reapplying causes said microprotrusions to repierce the body surface.

23. The method of claim 21, wherein said force is applied manually.

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24. The method of claim 21, wherein the structural support comprises an annular member.

25. The method of claim 24, wherein the annular member is a circular, square or rectangular annular member having a diagonal cross-member.

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26. The method of claim 21, wherein the structural support has a plurality of cross-members.

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27. The method of claim 26, wherein the plurality of cross-members intersect generally in the center of the structural support.

- 5 28. The method of claim 21, wherein the structural support comprises:
an outer annular member;
an inner annular member having a diameter less than a diameter of the
outer annular member; and
the cross-member joins the inner annular member to the outer annular
10 member.
29. The method of claim 21, wherein the support has greater rigidity to a
force applied perpendicular to the body surface than does the member.
- 15 30. The method of claim 21, wherein the support is sufficiently rigid to
deflect less than 300 μm under manually applied finger or hand pressing of the
device against skin.
31. The method of claim 30, wherein the support deflects less than 50 μm
20 under said pressing.
32. The method of claim 21, wherein the support is sufficiently
incompressible to compress less than 250 μm under manually applied finger or
hand pressing the device against skin.
- 25 33. The method of claim 32, wherein the support compresses less than 50
 μm under said pressing.
34. The method of claim 21, wherein the member comprises a sheet which
30 in use is oriented approximately parallel to the body surface, the sheet having a
plurality of openings therein and the plurality of microprotrusions extending
from a body proximal surface of the sheet, said microprotrusions being adapted
to pierce the body surface.
- 35 35. The method of claim 21, wherein the structural support defines a void for
an agent-containing or agent-receiving reservoir.

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